

~~CONFIDENTIAL~~

Nº

82

RESEARCH AID

INDEXES OF PRICES  
OF CONSUMER GOODS AND SERVICES  
IN THE USSR  
1928-58



CIA/RR RA 59-17

December 1959

CENTRAL INTELLIGENCE AGENCY  
OFFICE OF RESEARCH AND REPORTS

~~CONFIDENTIAL~~

**W A R N I N G**

This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, USC, Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

C-O-N-F-I-D-E-N-T-I-A-L

RESEARCH AID

INDEXES OF PRICES OF CONSUMER GOODS AND SERVICES IN THE USSR  
1928-58

CIA/RR RA 59-17

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

FOREWORD

This research aid provides a brief but comprehensive view of consumer prices (the prices of consumer goods and services) in the USSR during 1928-58. The research aid presents an index of consumer prices and indexes of the three main components of these prices, as follows: (1) consumer goods in state and cooperative stores, (2) consumer goods in collective farm markets, and (3) consumer services. Trends in consumer prices are described and interpreted, and an assessment is made of Soviet policies as reflected in these trends.

The indexes of the prices of consumer goods are based mainly on official Soviet indexes, but certain gaps have been filled by indexes derived from fragmentary data in official and other sources. The index of the prices of consumer services is derived from Soviet data on prices and quantities sold.

As an aid to understanding the significance of the indexes, a description of the important types of consumer prices in the USSR is included, emphasis being placed on the ways in which these prices are currently set. Technical material dealing with the evaluation and methods of construction of both the official and the calculated indexes has been relegated to Appendix A whenever possible.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

CONTENTS

	<u>Page</u>
Summary . . . . .	1
I. Introduction . . . . .	2
II. Movements of Consumer Prices, 1928-58 . . . . .	4
A. Period of Increasing Prices, 1928-47 . . . . .	4
B. Period of Declining Prices, 1948-54 . . . . .	7
C. Period of Stable Prices, 1955-58 . . . . .	9
III. Official Policy on Consumer Prices . . . . .	9
IV. Consumer Markets . . . . .	11
A. State and Cooperative Trade . . . . .	11
1. Organization . . . . .	11
a. State Trade . . . . .	11
b. Cooperative Trade . . . . .	12
2. Price-Setting . . . . .	12
3. Geographic and Seasonal Variations in Prices . . . . .	13
a. Zonal . . . . .	14
b. Urban-Rural Differential . . . . .	14
c. Seasonal . . . . .	14
B. Collective Farm Market . . . . .	15
C. Consumer Services . . . . .	15

Appendixes

Appendix A. Methodology . . . . .	17
Appendix B. Gaps in Intelligence . . . . .	35
Appendix C. Source References . . . . .	37

- v -

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

Tables

	<u>Page</u>
1. Indexes of the Prices of Consumer Goods and Services in the USSR, Selected Years, 1928-58 . . . . .	4
2. Indexes of Prices in Collective Farm Markets and of State and Cooperative Food Prices in the USSR, Selected Years, 1928-58 . . . . .	6
3. Indexes of State and Cooperative Prices in the USSR, Selected Years, 1928-58 . . . . .	7
4. Indexes of the Prices of Selected Commodities in the Collective Farm Markets in Selected Areas of the USSR, 1956 . . . . .	16

Chart

Following Page

USSR: Indexes of the Prices of Consumer Goods and Services, 1947-58 . . . . .	2
---	---

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

INDEXES OF PRICES OF CONSUMER GOODS AND SERVICES IN THE USSR\*  
1928-58

Summary

The rapid growth of the economy of the USSR was marked by wide fluctuations in consumer prices,\*\* which rose rapidly during 1928-47, declined even more rapidly during 1948-54, and have remained relatively stable since 1954. These fluctuations resulted from changes in Soviet monetary and fiscal policies as well as in retail price policies. The indexes of consumer prices are shown graphically on the chart.\*\*\*

During 1929-47, consumer prices increased approximately 21 times, as the Soviet government permitted money wages to increase far more than the available supply of consumer goods and services. State and co-operative prices were raised 23 times and the prices of consumer services 3.4 times. These increases, however, were not sufficient to offset the rise in purchasing power, and the consequent development of excess demand led to a 53-fold increase of prices in collective farm markets.

During 1948-54, consumer prices were reduced to 43 percent of their level in 1947. This reduction was made possible by the success of the regime in combating inflation through currency reform, the stabilization of wages, and the achievement of substantial increases in the supply of consumer goods and services. State and cooperative prices were reduced to 43 percent of their level in 1947, and prices in collective farm markets declined to 29 percent of their level in 1947. The prices of consumer services were increased slightly. In collective farm markets the decline in prices took place between 1947 and 1950. During 1950-54, reductions in state and cooperative prices were more than could be justified by the increase in the supply of consumer goods and services and, by creating excess demand, prevented a further decline in prices in collective farm markets.

---

\* The estimates and conclusions in this research aid represent the best judgment of this Office as of 1 October 1959. The word prices in this research aid refers to retail prices unless otherwise indicated.

\*\* The term consumer prices in this research aid refers to the prices of consumer goods and services.

\*\*\* Following p. 2.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

During 1955-58, consumer prices remained stable, and this stability, together with the continued increase in the supplies of consumer goods and services, forced down prices in collective farm markets by reducing excess demand. This trend in consumer prices may presage a deliberate shift from the Stalinist policy of maintaining a permanent "seller's market" for consumer goods and services and toward a permanent elimination of excess demand.

Official\* indexes of state and cooperative prices during 1928-48, when compared with an independently constructed index, appear to be reasonably reliable if account is taken of formula bias in the index for 1928-37. There is no positive evidence of significant distortion in the official indexes of state and cooperative prices for 1949-58. In the official index of collective farm market prices, there appears to be a fairly wide margin of error arising from the methods used in collecting the data.

---

## I. Introduction

The purpose of this research aid is threefold: (1) to construct a combined index of the prices of Soviet consumer goods and services,\*\* (2) to evaluate the reliability of the index with particular emphasis on those components obtained directly from official sources, and (3) to assess the official Soviet policy on consumer prices reflected in the movements of the consumer price index and its principal components.

The consumer price index and its component indexes, in addition to their intrinsic value, are of use as deflators of money wages and, as such, provide an indication of trends in the proportion of real income which the Soviet worker spends on goods and services. The indexes also can be used as deflators for the corresponding parts of the consumption sector of the gross national product (GNP). Both the sensitivity of the index to year-by-year changes and the accuracy of its long-run trend are uncertain, however, because of unmeasurable changes in quality and because the prices of services in the USSR have been particularly unresponsive to market demand.

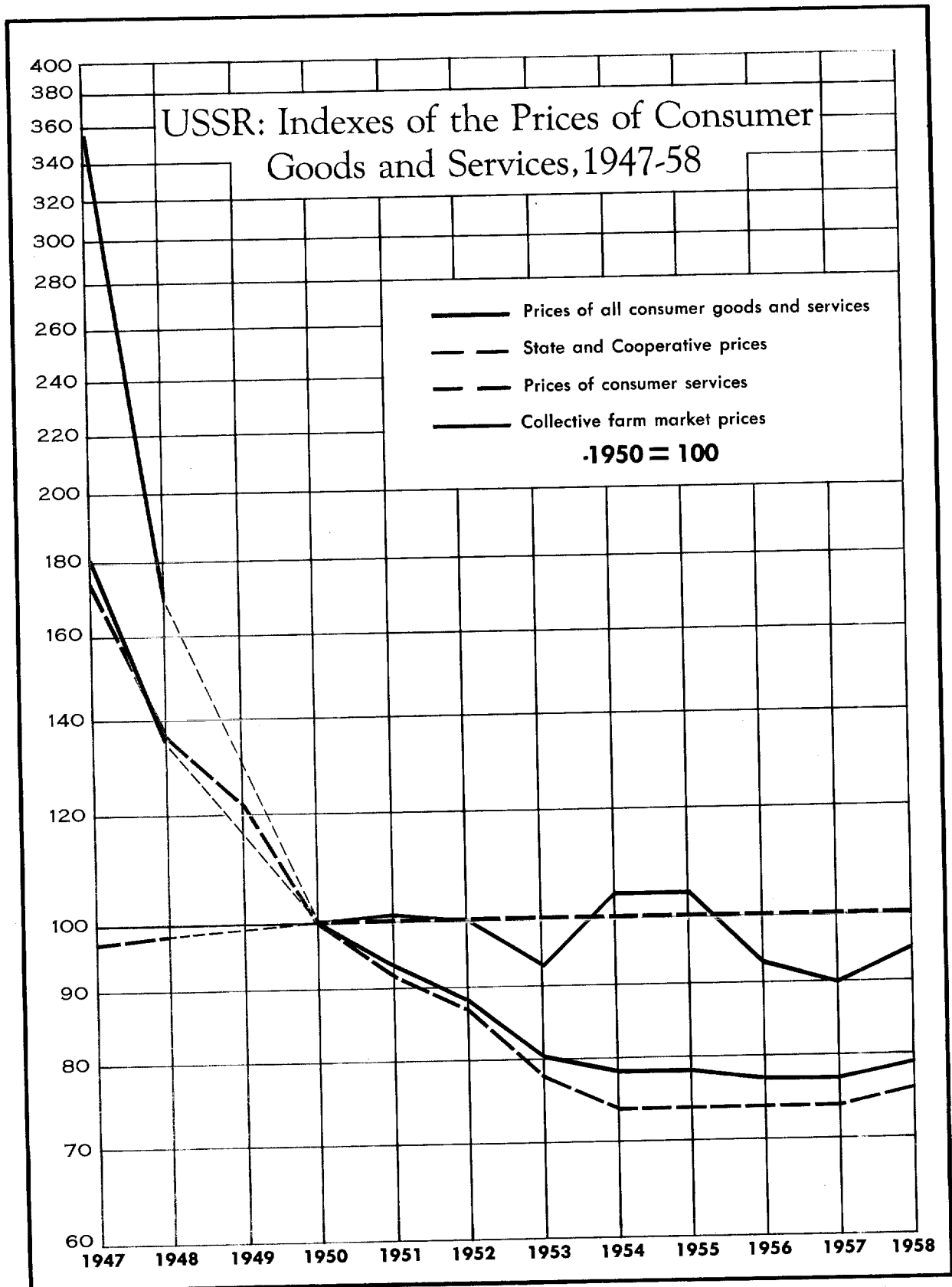
---

\* The term official in this research aid refers to information, data, statistics, or indexes published by the Soviet government or otherwise substantiated by overt or tacit acceptance by the government and to activities of the Soviet government or those having the sanction of the government.

\*\* The combined index of the prices of Soviet consumer goods and services is referred to in this research aid as the consumer price index.

C-O-N-F-I-D-E-N-T-I-A-L

**CONFIDENTIAL**



28079 11-59

**CONFIDENTIAL**

C-O-N-F-I-D-E-N-T-I-A-L

This research aid has made considerable use of previous work on Soviet consumer prices by Janet Chapman. 1/\* The differences between the present index and the Chapman index are discussed in Appendix A.\*\*

The consumer price index presented here includes prices paid by Soviet consumers for goods and services which they purchase in the market. Excluded from the index are the imputed prices of goods and services which are not supplied to the population through regular market channels. Examples of such excluded goods and services are farm income in kind, imputed rents on owner-occupied dwellings, and services such as health services and education which are supplied to the population mainly free of charge.

The consumer price index presented in this research aid is composed of three indexes: first, and quantitatively the most important, an index of the prices of consumer goods sold in state and cooperative stores; second, an index of the prices of consumer goods sold in the collective farm markets; and, third, an index of the prices of consumer services. Except for the period 1928-37, the index of state and cooperative prices presented here is the official Soviet index. For the years 1940, 1947, and 1950-58 the index used is that index published explicitly in recent statistical handbooks, the only change being a shifting of the base year. For the remaining years, the index of state and cooperative prices is that index implied by official Soviet data, which was derived by dividing total state and cooperative sales expressed in current prices by the official index of the volume of sales expressed in constant prices.\*\*\* For the years 1928-37 the index thus derived was adjusted to take account of substantial formula bias.

The index of collective farm market prices is the official index for the years 1940, 1947, and 1950-58, the only change being a shifting of the base year. The index of prices in collective farm markets for the years 1928, 1937, and 1948 was estimated from data on the relation of prices in collective farm markets to state and cooperative food prices.

The index of the prices of consumer services in this research aid, an extension of the Chapman index, was computed from data on prices and quantities derived mainly from official sources.

\* For serially numbered source references, see Appendix C.

\*\* P. 17, below.

\*\*\* Because the price index thus derived is implied directly by official data, the index is referred to in this research aid as the official index.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

II. Movements of Consumer Prices, 1928-58A. Period of Increasing Prices, 1928-47

In 1929 the USSR, under the first of a succession of Five Year Plans, embarked on a program of forced industrialization, which achieved remarkable results by Western standards. The rapid progress achieved during 1929-40, when GNP increased about 5 per-cent per year, 2/ was accompanied by a sharp inflation in which the prices of consumer goods increased seven times, as shown in Table 1.

Table 1

Indexes of the Prices of Consumer Goods and Services  
in the USSR a/  
Selected Years, 1928-58

1950 = 100			
Year	Prices of All Consumer Goods and Services <u>b/</u>	Prices of Consumer Goods <u>c/</u>	Prices of Consumer Services
1928	8.0	7.1	22
1937	45	45	44
1940	N.A.	57	N.A.
1947	180	185	97
1948	135	137	98
1950	100	100	100
1951	93	93	100
1952	89	88	100
1953	80	79	100
1954	78	76	100
1955	78	76	100
1956	77	75	100
1957	77	75	100
1958	79	77	100

a. For details on the construction of indexes presented in this table, see Appendix A.

b. Average of the indexes of the prices of consumer goods and consumer services, based on 1955 weights.

c. Average of the indexes of the prices of consumer goods in state and cooperative stores and in the collective farm market, based on 1955 weights.

C-O-N-F-I-D-E-N-T-I-A-L

Further inflation occurred during World War II, and by 1947, when prices of consumer goods reached their peak, the level was 26 times that of 1928. The effective increase in prices would be even greater if reductions in quality that took place during the period were taken into account.

The main cause of the inflation was a vast, unplanned increase in money wages accompanying the drastic reallocation of resources entailed in industrial expansion, together with a much smaller increase in the supply of consumer goods and services available through market channels to the population. During 1929-47 the urban labor force approximately tripled, and the average money wage of workers and employees increased nine times. The increase in average money wages resulted from a growing scarcity of skilled labor, a relatively high level of labor mobility, inadequate state control over wage rates, and a laxity in state control of credit to industrial enterprises which permitted factory managers to bid up wages for scarce labor in order to fulfill their plans for production.

The greatest impact of the increase in purchasing power in excess of the supply of consumer goods and services was felt in the collective farm market where prices are not regulated directly by the state. Over the period as a whole the regime failed to raise the prices of consumer services and state and cooperative prices to levels commensurate with the increased purchasing power and thus permitted the development of excess demand for goods and services. When the quantity of goods supplied to the collective farm markets did not increase significantly, prices in collective farm markets were forced upward sharply.

During 1929-47, prices in collective farm markets are estimated to have increased 53 times, as shown in Table 2.\* During the same period, state and cooperative prices increased 23 times, as shown in Table 3,\*\* whereas prices of consumer services increased only 3.4 times. The increase in state and cooperative prices was the result mainly of a large increase in wholesale prices but also reflects increases in turnover taxes. From 1928-29 to 1948 the average rate of turnover tax\*\*\* on goods purchased in state and cooperative stores increased from 22 percent to 64 percent of the value of goods sold.

\* Table 2 follows on p. 6.

\*\* Table 3 follows on p. 7.

\*\*\* The average rate of turnover tax is defined as the ratio of receipts from turnover taxes from the sale of consumer goods to total state and cooperative retail sales. Receipts from taxes in 1928-29 represent the sum of receipts from commodity taxes later combined into the turnover tax when it was formally adopted in 1930. 3/

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

Table 2

Indexes of Prices in Collective Farm Markets  
and of State and Cooperative Food Prices in the USSR a/  
Selected Years, 1928-58

Year	Index of Prices in Collective Farm Markets (1950 = 100)	Index of State and Cooperative Food Prices (1950 = 100)	Ratio of Prices in Collective Farm Markets to State and Cooperative Food Prices <u>b/</u>
1928	6.6	5.6	1.36
1937	42	43	1.10
1940	96	50	2.24
1947	357	182	2.30
1948	168	142	1.35
1950	100	100	1.17
1951	101	89	1.33
1952	100	82	1.43
1953	93	72	1.51
1954	104	70	1.74
1955	104	70	1.74
1956	93	70	1.53
1957	90	71	1.48
1958	95	73	1.52

a. For details on the construction of indexes presented in this table, see Appendix A.

b. The ratios for the years 1928, 1937, and 1948 were computed from data on Moscow prices of comparable commodities in the two markets. The ratio for 1955 was derived from official data relating food prices in commission stores in 1955 to both state and cooperative and collective farm market prices. The ratios for the remaining years were derived from the ratio in 1955 on the basis of the relative trends of prices in the two markets. For detailed discussion, see Appendix A.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

Table 3

Indexes of State and Cooperative Prices  
in the USSR a/  
Selected Years, 1928-58

1950 = 100			
Year	Prices of All Commodities	Prices of Food	Prices of Nonfood Goods
1928	7.1	5.6	9.3
1937	45	43	47
1940	54	50	61
1945	127	N.A.	N.A.
1946	151	N.A.	N.A.
1947	173	182	152
1948	135	142	123
1949	121	N.A.	N.A.
1950	100	100	100
1951	92	89	95
1952	87	82	95
1953	78	72	87
1954	74	70	80
1955	74	70	81
1956	74	70	80
1957	74	71	80
1958	76	73	80

a. Including restaurant prices and prices charged by commission stores of the Central Union of Consumer Cooperatives following their inception in 1953. For details on the construction of indexes presented in this table, see Appendix A.

B. Period of Declining Prices, 1948-54

Since World War II the Soviet economy has achieved a rate of increase in GNP even higher than in prewar years, amounting to 7 per cent per year during 1950-58. <sup>4/</sup> In spite of this increased rate of growth, the Soviet government has been successful in combating inflationary pressures and has reduced consumer prices substantially below their 1947 peak. Money wages were stabilized through centralized regulation of wage scales, through tightening of credit to industrial enterprises, and through restrictions on labor mobility. During

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

1949-54 the average money wages of urban workers and employees increased only 11 percent. The supply of consumer goods through market channels, however, is estimated to have increased about 40 percent per capita. 5/

During 1948-54, consumer prices were reduced to 43 percent of their level in 1947. This reduction was composed of a reduction of the prices of consumer goods to 41 percent of their level in 1947 and little change in the prices of services. The effective reduction would be somewhat greater if account were taken of improvements in the quality of consumer goods during the period.

Collective farm market prices declined to 29 percent of their 1947 level during the period 1948-54, a reduction much greater than that of state and cooperative prices. This decline in collective farm market prices, which occurred mainly in the years 1947-50, was caused by a sharp increase in the supply of consumer goods and by monetary and price measures during 1947-50. At the end of 1947, the Soviet government, to permit the abolition of rationing, introduced a currency reform that eliminated the "forced" savings that the population had accumulated during the war years in the form of currency and bank deposits. In addition, prices of rationed goods in state and cooperative stores were increased and prices of nonrationed goods in state and cooperative stores were reduced by 1948, with the net effect of reducing average state store prices to 78 percent of those in 1947. These actions, together with further reductions of state and cooperative prices and with increased supplies of consumer goods and services in state and cooperative stores, caused collective farm market prices to decline more than state and cooperative food prices. By 1950, collective farm market prices were only about 17 percent more than state and cooperative food prices as is shown in Table 2.\* This small differential, however, was not maintained. During 1951-55 the Soviet government further reduced state and cooperative prices to 74 percent of those in 1950, a reduction which increased the demand for consumer goods more rapidly than the supply, thus preventing a corresponding decline in collective farm market prices. Although the supply of goods on the collective farm market increased during 1951-55, the spread between collective farm market prices and state and cooperative food prices increased, and by 1955 collective farm market prices were 74 percent more than state and cooperative food prices. Excess demand for nonfood consumer goods at prevailing prices was evident in the widespread "shortages" reported during most of the period.

The reductions in state and cooperative prices were effected largely by reducing the rates of turnover taxes. From 1948 to 1957 the

\* P. 6, above.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

average rate of turnover tax on goods purchased in state and cooperative stores declined from 64 percent to 44 percent of the value of goods sold.

C. Period of Stable Prices, 1955-58

In 1955 the Soviet government abandoned the policy of making general, across-the-board reductions in consumer prices in favor of maintaining stability in the general level of consumer prices. The new policy calls for reductions in the prices of individual commodities when justified by reductions in costs of production, but few price reductions have been made. These reductions generally have applied to consumer durable goods of limited consumption and have had no perceptible effect on the general level of state and cooperative prices. Since the adoption of the new policy, stable state and cooperative prices, together with substantial increases in the supply of consumer goods and services, have forced down prices in the collective farm market by reducing the gap between the quantity of consumer goods demanded and the quantity supplied at prevailing state and cooperative prices.

Events of 1958 appear to demonstrate that the Soviet government intends to adhere rigidly to the present conservative price policy. Early in 1958 the Soviet government, in an effort to reduce the "adverse effects on labor productivity" of excessive consumption of vodka, raised the prices of vodka products substantially. Other price increases at that time included those on automobiles, motorcycles, and carpets. Although occasional reductions were made during the year on items such as children's clothing and some types of fish, these reductions were not sufficient to offset fully the price increases. Thus, in spite of the obvious propaganda disadvantages of such a course, the general level of state and cooperative prices was allowed to increase by 2 percent.

III. Official Policy on Consumer Prices

In spite of extensive rationing since 1928, the Soviet government has indicated in its performance that it prefers the use of the market mechanism rather than rationing in controlling the distribution of consumer goods, and, although to a lesser extent, most consumer services except housing. During the extreme upheaval of the First Five Year Plan and of collectivization of agriculture during 1928-33 and again during and shortly after World War II, when large increases in purchasing power were associated with declines or only small increases in the supply of consumer goods, the state employed rationing as an emergency measure to ensure that available supplies of consumer goods were distributed in accordance with the interests of the state. On both occasions, however, in 1935-36 and again in 1947, as soon as it was feasible, the state abolished both rationing and the need for it by eliminating most of the accumulated excess demand.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

The pricing of principal consumer services appears to be far more arbitrary than pricing of consumer goods. Equating the quantity of consumer services demanded with the supply available has been accomplished mainly through a variety of formal and informal rationing devices, varying from quantitative allocations made on the basis of square meters of floor space per family member in the case of housing, to a simple first-come, first-served arrangement in the case of some transportation and many recreational and personal services. There is also evidence of the widespread use of bribes and other illegal payments for the allocation of housing space.

The Soviet government refuses to tolerate extreme disparities between purchasing power and the available supply of consumer goods, but until 1955 it showed little concern for lesser disparities in spite of the advantages of avoiding them. The basis on which these disparities are measured is the ratio of the prices of comparable commodities in the collective farm market to those in state and cooperative stores. Prices in the two markets are available for 1928, 1937, and 1948. Ratios of prices of individual commodities have been aggregated to obtain over-all ratios of collective farm market prices to state and cooperative store prices for those years. Also, it has been possible to derive the aggregate ratio for 1955 from data on the ratio of commission store food prices to both collective farm market prices and state and cooperative store prices. The results of these computations are presented in Table 2.\*

To permit the abolition of rationing in 1935-36, the state eliminated most of the excess purchasing power by sharply increasing state and cooperative prices, which, together with increases in the available supply of consumer goods and services, forced collective farm market prices and state and cooperative prices into approximate equality. This parity was not maintained. During 1937-40 the failure to increase state and cooperative prices commensurately with increases in purchasing power again led to the development of excess purchasing power. This excess purchasing power, together with the decline in supplies in the collective farm market, forced collective farm market prices to increase about 130 percent above those of 1937.

During 1950-54 the approximate equality between collective farm market prices and state and cooperative food prices, obtained primarily as a result of the currency reform of 1947, again was not maintained. The state deliberately increased excess purchasing power, and thus the

\* P. 6, above.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

spread between collective farm market prices and state and cooperative food prices during this period, by reducing state and cooperative food prices more than was justified by increased supply.

The shift in 1955 to a policy of maintaining stability of consumer prices may reflect, however, a determination on the part of the regime to eliminate excess purchasing power entirely in the near future, thus eliminating queuing for nonfood goods and the two-price system for food. Elimination of excess purchasing power could be achieved by continuing the present policy of holding state and cooperative prices stable, as is implied by the Seven Year Plan, while limiting increases in money wages to less than the increases attained in the supply of consumer goods and services.

The principal advantage to the state of eliminating excess purchasing power is its potential effect in increasing worker incentives. The average worker is likely to work harder for a cash bonus if he is certain that he can purchase readily the goods he wants with it than if the bonus merely entitles him to stand in a queue or to place his name on a waiting list. The disadvantage to the state is that, as excess demand declines, increasing buyer resistance could force the state to pay far greater attention to the tastes and preferences of the population than it does now in the production of consumer goods and services.

#### IV. Consumer Markets

##### A. State and Cooperative Trade

##### 1. Organization

##### a. State Trade

The network of state retail trade in the USSR, which in 1958 accounted for 69 percent of total state and cooperative sales, presently comprises the retail outlets and restaurants which, until 1957, were subordinate to (1) the Ministry of Trade; (2) the Main Administrations of Workers' Supply of the industrial ministries and the Ministries of Transportation and Construction; (3) the Ministries of Health, Communications, and Culture; and (4) republic ministries and miscellaneous state organizations.\* 7/

\* Republic ministries and state organizations include procurement organizations, republic ministries of local and fuel industry, organizations of the ministries of municipal services, and others. In 1955, retail outlets and restaurants subordinate to the Ministry of Trade accounted for 68 percent of total state retail sales; those subordinate to the Main Administrations of Workers' Supply, 27 percent; those subordinate to the Ministries of Health, Communications, and Culture, 3 percent; and those subordinate to republic ministries and other state organizations, 2 percent. 6/

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

During 1957-58, control of those outlets which up to that time were subordinate to the Ministry of Trade was transferred to the republic ministries of trade and to oblast and city councils. This transfer was completed by November 1958, when the Ministry of Trade was abolished.

Control of those outlets subordinate to the Main Administrations of Workers' Supply of the industrial ministries -- most of which were abolished in 1957 -- and the Ministries of Transportation and Construction apparently has been transferred to the sovmarkhozy (Sovety Narodnogo Khozyaystva -- regional Councils of the National Economy) of the economic regions\* in which they are located. 8/ Control of the remaining outlets remains largely unchanged.

b. Cooperative Trade 9/

The network of cooperative retail trade in the USSR, which in 1958 accounted for 31 percent of total state and cooperative retail sales, comprises retail outlets and restaurants subordinate to (1) the Central Union of Consumer Cooperatives, which operates mainly in rural areas, and (2) retail outlets and restaurants of producer cooperatives, subordinate to Central Producers' Councils of each republic. In 1958, outlets of the Central Union of Consumer Cooperatives accounted for 98.3 percent of total cooperative sales, and producer cooperatives accounted for the rest.

Outlets subordinate to the Central Union of Consumer Cooperatives include commission stores established in 1953 to sell food products in urban areas. Commission stores sell commodities obtained from collective farms and individual farmers in return for commissions paid to them by the producer at rates set by the government. In 1958 the average rate of commission was 9 percent. In 1958, commission stores accounted for 4 percent of total cooperative retail sales.

2. Price-Setting 10/

Setting of state and cooperative prices is subject to tight central control. The general level of state and cooperative prices as well as the specific prices of principal commodities\*\* is determined by the Council of Ministers on the basis of data supplied by the State

\* The term region in this report refers to the economic regions defined and numbered on map 27052 (7-58), USSR: Political-Administrative Divisions and Economic Regions, March 1958.

\*\* These commodities include bread, flour, meat, sugar, vodka, textile fabrics, footwear, knitwear, and durable consumer goods.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

Planning Committee (Gosplan) and the Central Statistical Administration.\* The setting of prices of other consumer goods (amounting to 45 percent of total state and cooperative sales) is delegated to the councils of ministers of the union republics, which in turn may further delegate it to republic planning committees (gosplans), republic ministries of trade, sovnarkhozy, and oblast and city councils. At present the delegated price-setting is carried out in most republics directly by republic councils of ministers on the basis of data supplied to them mainly by the republic ministries of trade, although in a few republics the data are supplied directly by the sovnarkhozy or republic producing ministries.

The delegation of price-setting by the Council of Ministers is more nominal than real, however, because price-setting at the republic level is permitted to be conducted only within very narrow limits. The price-setting activities at the republic level relate primarily to setting prices on products newly produced within the republics, equalizing the prices of identical commodities sold within the republics, and effecting temporary price changes to dispose of surpluses or to eliminate shortages. The new prices set and prices charged are subject to statistical supervision by the Central Statistical Administration.

Prices charged for food by commission stores of the Central Union of Consumer Cooperatives are set by a different process. These prices are determined by agreement between the cooperative and collective farms and the individual farmers from whom they receive agricultural products to be sold on commission. The agreed prices, however, are subject to a limitation set by the Soviet government and enforced by the Central Statistical Administration that they be lower than prices of comparable goods on nearby collective farm markets.

### 3. Geographic and Seasonal Variations in Prices 11/

State and cooperative prices of a number of important commodities are set at significantly different levels according to geographic location of sale. In the case of a few important agricultural commodities, state and cooperative prices are set at different levels according to season. These price differentials apply mainly to commodities the prices of which continue to be set by the Council of Ministers.

\* The Ministry of Trade also participated in setting retail prices until its abolition in November 1958.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

a. Zonal

Zonal differentials in the prices of some individual commodities,\* the production costs of which vary widely because of the location of natural resources (such as food products) or on which transportation costs are a large proportion of total cost (such as furniture), are established by the Council of Ministers.

At present the USSR is divided into three price zones for most food products, and typical price differentials between the lowest and the highest price zones vary from 7 percent in the case of butter to 24 percent in the case of sugar. The price zones take roughly the form of concentric circles surrounding the region having the lowest costs of production with the lowest price at the center and the higher prices toward the extremes. The location of these zones differs widely among the commodities. Moscow and Irkutsk, for example, are in the second price zone for about one-half of the commodities subject to zonal pricing, whereas Murmansk is in the third price zone for about one-half of these commodities.

b. Urban-Rural Differential

Prices on some commodities\*\* are at present 7 percent higher in rural districts than in urban areas, thus allowing for greater transportation costs to these presumably remote areas. This differential is currently under attack because of its arbitrariness and because it encourages collective farmers to take time from their work by coming to urban areas to do their shopping and also because it encourages "speculation" (arbitrage) in rural areas adjacent to urban markets. Recommendations for abolition of the arbitrary urban-rural differential have included suggestions that actual transportation charges be added to the established state and co-operative prices in remote areas.

c. Seasonal

Seasonal variations in prices are established by the Council of Ministers on a number of important agricultural products,\*\*\* the production and hence the availability of which varies during the

\* At present, products subject to zonal pricing include bread, meat, fish, sugar, confections, salt, canned goods, and furniture.

\*\* These commodities include sugar, confections, textile fabrics, sewn clothing, knitwear, footwear, soap, kerosine, matches, and other items. In the case of sugar and confections, for which zonal price differentials have been established, the urban-rural differential is in addition to the zonal differential.

\*\*\* These commodities include milk and milk products, eggs, potatoes, vegetables, fruit, and melons.

C-O-N-F-I-D-E-N-T-I-A-L

seasons of the year. The seasonal variation is set so that the price is lowest during the harvest and increases between harvests.

#### B. Collective Farm Market

The collective farm market consists of individual market places or bazaars located in most cities and villages throughout the USSR. Food products remaining to collective farms and to individual members after compulsory sales to the state can be sold in the collective farm market at uncontrolled prices.\* First organized in 1932, the collective farm market is the successor to private food trade which was permitted during the New Economic Program of the 1920's but which was suppressed briefly in 1931. In 1958 the urban collective farm market accounted for 6 percent of total retail sales.\*\* 12/

The index of collective farm market prices is composed of innumerable movements of prices in collective farm markets in individual geographical areas which are diverse in both extent and direction in response to local demand and supply conditions. Table 4\*\*\* shows such movements for a few local areas and compares them with the over-all index of collective farm market prices.

#### C. Consumer Services

The consumer services discussed in this research aid consist of services which are provided to households in the USSR in return for cash outlays. The specific groups of services included and their relative importance in total household expenditures on services in 1958 are listed in the following tabulation 13/:

	<u>Billion Rubles</u>	<u>Percent</u>
Total****	<u>53.3</u>	<u>100.0</u>
Rent of state-owned housing	5.0	9.4
Utilities (such as electricity and water)	7.4	13.9
Transportation	23.1	43.3
Communications	7.1	13.3
Recreation	7.9	14.8
Personal services	2.8	5.3

\* Food products typically sold in the collective farm market include meat, fruit, vegetables, dairy products, and flour and other grain products.

\*\* The index of collective farm market prices presented in this research aid is limited to urban collective farm markets, sales in which account for about 75 percent of total collective farm market sales. Price data are not available for village collective farm markets.

\*\*\* Table 4 follows on p. 16.

\*\*\*\* Excluding repair services such as repair of clothing. Prices of repair services are included in the index of state and cooperative prices.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

Table 4

Indexes of the Prices of Selected Commodities  
in the Collective Farm Markets in Selected Areas of the USSR a/  
1956

1955 = 100

Area	All Products	Meat Products	Vege- tables	Potatoes	Fresh Milk	Butter	Eggs
USSR	91	89	86	88	82	75	93
RSFSR	92	89	85	86	83	78	93
Central Region	92	88	89	83	84	77	93
Ural Region	91	92	90	102	82	78	92
Ukrainian SSR	90	84	87	81	76	67	92
Belorussian SSR	99	100	101	95	88	90	102
Armenian SSR	104	93	104	92	97	91	99
Turkmen SSR	86	95	87	N.A.	93	88	87

a. 14/

As in the case of prices of consumer goods in state and co-operative stores,\* the setting of prices of consumer services is subject to tight central control. The Council of Ministers establishes the basic rate schedules for charging for consumer services on which basis specific charges in individual cases are determined by oblast and municipal councils. In the case of housing, for example, the Council sets the maximum rate to be charged per square meter and establishes an elaborate schedule for use of oblast and municipal councils in determining specific rents per square meter below the maximum on the basis of the quality, location, and other features offered in specific dwellings as well as on the basis of the income of the household.

\* See A, 2, p. 12, above.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

APPENDIX A

METHODOLOGY

1. Index of State and Cooperative Prices

a. Derivation

The index of state and cooperative retail prices for 1940 and 1950-58 is the official index as published in source 15/. The only change is that the base has been shifted to 1950. This index includes prices in restaurants and prices in commission stores of the Central Union of Consumer Cooperatives following their inception in 1953. The index for 1928 and 1937 was derived by dividing official data on total state and cooperative sales expressed in current prices from source 16/ by the official index of sales volume, in constant prices, reported in source 17/. On the basis of an independent check, the index for 1928 thus derived was adjusted to take account of formula bias.\*

The index for 1945-47 and 1948-49 was derived by the same method as that above except that the index of sales volume was obtained by chaining the percentage increases in sales volume reported in the annual reports of plan fulfillment. No percentage increase in sales volume over that in 1947 was reported for 1948 in the annual reports of plan fulfillment. The link in the price index between 1947 and 1948 was reported, however, in source 18/.

The indexes of food and nonfood prices for 1940 and 1950-58 were derived from the same source as above. Because no official indexes of the volume of sales of food and nonfood products are available for 1928, 1937, and 1948, the indexes of food and nonfood prices for those years are based on the revised Chapman index.\*\* In obtaining the indexes of food and nonfood prices for 1928 and 1937, the revised Chapman indexes of food and nonfood prices were adjusted by the ratio of the combined Chapman index to the combined index of state and cooperative prices used in this research aid. The indexes of food and nonfood prices for 1948 were derived from the official index of state and cooperative prices reported in source 19/ by date of price reduction. Because the index of the prices of all commodities contained in this source for 1948 is about 5 percent higher than the index derived

\* For discussion of this adjustment, see b, p. 18, below.

\*\* Revision of the Chapman index is discussed in c, p. 26, below.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

in the fashion described above, the indexes of food and nonfood prices obtained from this source were reduced accordingly. The indexes of food and nonfood prices for 1947 were obtained from source 20/.

b. Evaluation

Errors that may be present in the official index of state and cooperative prices are divided into two main classes as follows: first, technical errors of index construction, which might result from poor choice of formulas, inappropriate treatment of new products, or lack of representativeness in the sample of prices included in the index, and, second, deliberate distortions designed to avoid disclosing developments believed to be prejudicial to the interests of the Soviet government.

The Soviet method of constructing the index of state and cooperative prices is discussed and a number of possible sources of error are described in (1), below. A test is made of the degree to which both possible sources of error are present in the official index in (2), below.

(1) Soviet Methods of Constructing the Index\*

As has been discussed in IV, A,\*\* in addition to changing through time, state and cooperative prices in the USSR vary seasonally as well as according to price zones and the urban-rural price differential. Most of these prices and the changes in them are available to or are estimated\*\*\* by the Central Statistical Administration, which constructs the index. The practice of estimating price changes for old commodities is not believed likely to introduce a significant amount of error. The importance of those prices affected, including those charged in commission stores of the Central Union of Consumer Cooperatives, is small in the index.\*\*\*\* The price changes having the major impact on the index for most of the period covered in this

---

\* The material on Soviet methods of constructing the index of state and cooperative prices presented in this section is derived from source 21/.

\*\* P. 11, above.

\*\*\* The exact translation is "imputed." Imputation of price changes not available to the Central Statistical Administration may include imputation of price changes for new commodities. See the discussion of the inclusion of new commodities appearing on p. 21, below.

\*\*\*\* Since 1953 the index of state and cooperative prices has included prices in commission stores. Price changes in commission stores are obtained on a crude sampling basis very similar to that used to obtain price changes in collective farm markets. Soviet methods of constructing the index of collective farm market prices are discussed in 2, b, p. 28, below.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

research aid will be those implemented by governmental decrees which will be available to the Central Statistical Administration.

Each retail outlet reports the ruble value of its sales of each commodity. From these data, indexes are constructed for broad commodity groups such as "bread and bread products" and "meat and meat products" according to the following formula\*:

$$\frac{\sum p_1 q_1}{\sum \frac{p_0}{p_1} (p_1 q_1)}$$

where the numerator,  $\sum p_1 q_1$ , is the actual ruble value of sales of the commodities included in the group in the given year. The denominator,

$\sum \frac{p_0}{p_1} (p_1 q_1)$ , is the ratio of the price of each commodity in the group

in the base year to its price in the given year multiplied by the actual ruble value of sales of that commodity in the given year. The formula is a variant of the fundamental Paasche formula, because it employs given year weights. To obtain the combined index of all state and co-operative prices, the indexes of the prices of the individual commodity groups are combined by the following formula:

$$\frac{\sum p_1 Q_1}{\sum \frac{p_0}{p_1} (p_1 Q_1)}$$

where the numerator,  $\sum p_1 Q_1$ , is the actual ruble value of sales of all commodity groups in the given year and the denominator,  $\sum \frac{p_0}{p_1} (p_1 Q_1)$ , is the sum of the inverted price relatives for each of the commodity groups multiplied by the actual ruble value of sales of that commodity group.

The official index of the physical volume of state and cooperative retail sales is constructed according to the following formula:

$$\frac{\sum p_0 Q_1}{\sum p_0 Q_0}$$

where the denominator,  $\sum p_0 Q_0$ , is the actual ruble value of state and

\* In the formulas and equations in this research aid, lower case letters represent individual items and capital letters represent aggregates.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

cooperative sales of all commodity groups in the base year. The numerator,  $\sum P_0 Q_1$ , is the total ruble value of sales in the given year expressed in terms of base year prices. The numerator is computed by deflating the total actual ruble value of sales in the given year for each commodity group by the inverted index of group prices, as follows:

$$\sum P_1 q_1 \div \frac{\sum P_1 q_1}{\sum \frac{P_0}{P_1} (P_1 q_1)} = \sum \frac{P_0}{P_1} (P_1 q_1) = \sum P_0 q_1$$

and then summing the  $\sum P_0 q_1$ 's for all commodity groups. The formula for the official index of the physical volume of state and cooperative retail sales is a Laspeyres formula because it uses base year weights.

Soviet literature on index numbers of retail trade does not specify precisely how the indexes of price or volume are combined into continuous series covering periods of years, but there are indirect indications that the official index may be a chain index. The two principal alternative methods for combining successive years are as follows:

(a) Moving weight index:

$$I_{on}^m = \frac{\sum P_n Q_n}{\sum P_o Q_n}$$

where  $I_{on}^m$  is the moving weight index comparing prices in base period "o" with given period "n".

(b) Chain index:

$$I_{on}^c = \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times \frac{\sum P_2 Q_2}{\sum P_1 Q_2} \times \dots \times \frac{\sum P_n Q_n}{\sum P_{n-1} Q_n}$$

where  $I_{on}^c$  is the chain index comparing prices in base period "o" with prices in given period "n."

Two indirect indications that the official index is a chain index are as follows:

(a) In the years when state and cooperative prices were reduced (mainly 1948-54), the Soviet government published data on the annual "economies" to the population resulting from the price reductions.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

These "economies" are defined in Soviet statistical literature as  $(\sum P_{n-1} Q_n) - (\sum P_n Q_n)$ . The first term of the expression is a byproduct of the chain index and would be readily available if the chain index were regularly constructed. Because the first term is not, however, a byproduct of the moving weight index and would have to be calculated separately at the cost of a great deal of extra computation if the official index were a moving weight index, it appears likely that the official index is a chain index.

(b) A corollary of the use of the moving weight formula for the index is that the index of sales volume derived from it would be a fixed weight index. In connection with the discussion of the index of sales volume, some Soviet texts on statistics contain a digression describing the many problems encountered in the use of prices of 1926-27 as weights in constructing the fixed weight index of industrial production. If the official index of sales volume were also a fixed weight index, it is reasonable to expect that this fact would be mentioned in the above connection. No mention is made, however, that the index of sales volume might also be a fixed weight index, the construction of which would entail similar problems. This fact suggests that the official index is a chain index.

Soviet literature on index numbers of retail trade also fails to mention how new commodities are included in the indexes of price or volume. There are two main alternatives: first, impute to the new commodities the trend of prices of similar old commodities, and, second, omit new commodities from the index. The second alternative would be practicable only if the official index were a chain index, in which case new commodities would be included in the index the second year they were on the market. In either case, some downward bias would result from the inclusion of new products at given year weights, because the prices of new products are likely to fall more rapidly than the prices of other products. The extent of this particular bias cannot be measured. It is, however, a factor in the general bias of an index number using given year weights.\*

## (2) Reliability of the Official Index

Although assessment of the reliability of the official index of state and cooperative prices for the years since 1950 is of greater intelligence interest than a similar assessment of the index for the years before 1950, the main emphasis is this research aid is

\* This general bias is discussed and roughly measured in (2), (a), p. 22, below.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

placed on evaluation of the index for the earlier period for two reasons: first, sufficient data for making an independent check of the index are available only for 1928-48, and, second, it is thought that conclusions as to the reliability of the index during the earlier period might also apply to some extent to the more recent period. For example, if it were determined that during the earlier period the official index reflected with reasonable accuracy the large rise in prices despite the large incentive from a propaganda point of view to understate it, this accuracy would be evidence that the index also is reasonably accurate during the more recent period when, because of declining prices, there is probably less incentive from a propaganda point of view to distort it.

(a) Indexes for 1928, 1937, and 1948

As was explained in a,\* the index of state and cooperative prices for 1928, 1937, and 1948, referred to hereafter as the official index, was derived by dividing an index of total state and cooperative sales expressed in current prices by the official index of sales volume. The index derived by this procedure is subject to both types of errors listed above.\*\* To determine the extent of bias resulting from all of these errors, the official indexes for these years are compared with an independently constructed index of state and cooperative prices which is a revision of the Chapman index.

In measuring changes between two time periods by means of indexes, two index numbers can be calculated: the Laspeyres, using base year weights, and the Paasche, using given year weights. In general the results of the two calculations will differ, the extent of the difference depending on the extent of change in relative prices and quantities during the period. As was shown above,\* the official index is computed according to the Paasche formula using given year weights.

To determine the extent of bias resulting from all possible sources except choice of formula, the independent index calculated according to the Paasche formula should be compared with the official index. In addition, to determine the extent of bias resulting from the use of the Paasche formula compared with the Laspeyres formula, the independent index calculated according to the Laspeyres formula should be compared with the official index. In the following tabulation the official index for 1928, 1937, and 1948 is compared with the independent indexes.

\* P. 17, above.

\*\* See b, p. 18, above.

C-O-N-F-I-D-E-N-T-I-A-L

## C-O-N-F-I-D-E-N-T-I-A-L

	1937 (1928 = 100)	1948 (1937 = 100)
Official price index	538	298
Independent indexes		
1928 weights	821 (Laspeyres)	
1937 weights	597 (Paasche)	321 (Laspeyres)
1948 weights		283 (Paasche)

Comparison of the official index with the independent Laspeyres indexes indicates that for 1928-37 the official index has a marked downward bias resulting from choice of formula but that bias resulting from the other sources of error is much smaller and is considered to be insignificant and that for 1937-48 the bias from all sources of error is minor. The large difference in the extent of formula bias between the two periods is attributed to the fact that during 1928-37 there was an extreme variation among the price relatives, whereas during 1937-48, when the USSR apparently attained a much tighter central control over price movements, the variation among price relatives was quite small. Because the data in the independent indexes are less reliable and the sample much smaller for 1928-37 than for 1937-48, the difference between the official and independent Paasche indexes for 1928-37 is judged not significant. Hence the conclusion for the entire period is that the official index is reasonably reliable if account is taken of formula bias for 1928-37.

In constructing the indexes presented in the tables in this research aid, the official index for 1928-37 was adjusted upward to approximate the arithmetic mean of the Laspeyres and Paasche indexes. This adjustment was made by marking up the official index by one-half the percentage that the Laspeyres form of the independent index exceeded the Paasche index. An analogous procedure also was followed for the indexes for food and nonfood prices for this period.

Although there may have been some improvements in quality in a few of the years during this period, quality of products sold probably declined in 1948 as compared with those in 1928. To the extent such quality changes occurred the index presented in the tables in this research aid understates the true increase in prices.

C-O-N-F-I-D-E-N-T-I-A-L

(b) Indexes for 1940 and 1950-58

The index of state and cooperative prices for 1940 and 1950-58 is the official index as explicitly published, the only change being a shifting of the base. It was determined that this explicit index included prices in restaurants and prices in commission stores of the Central Union of Consumer Cooperatives. This determination was made by computing the implied index for the same years by dividing an index of total state and cooperative sales, including restaurant and commission store sales, expressed in current prices by the official index of sales volume. The implied index derived by this method was indistinguishable from the official index published explicitly.

Insufficient data are available for constructing an independent index to use as a check of the official index for 1940 and 1950-58. It is necessary, therefore, to evaluate the reliability of the index indirectly. To determine the extent of formula bias, the official index which uses given year weights was recalculated from the indexes for individual commodity groups given in source 22/, using 1940 weights. Little formula bias was found by this method, its absence being attributable to the relatively small variation among the price and quantity relatives during the period.

Price reductions during 1940 and 1947-58 were achieved by means of annual decrees listing the general categories of goods for which prices were to be reduced and the percentage reduction in price. Moscow embassy dispatches covering prices in state and cooperative stores during the period appear to corroborate the claimed percentage reductions in prices. These percentage reductions also are consistent with the official index, at least for 1948-52. An index for this period, which was constructed by Janet Chapman using 1937 weights to combine the percentage reductions for individual commodities, agrees with the official index for this period.\*

There is a possible conflict between embassy reporting and the official index for 1956, but the evidence is insufficient to prove the official index unreliable. In January 1956 the classification system for most food products of animal origin on sale in state and cooperative stores was simplified by reducing the number of different classifications of products and prices. The net result of this simplification, the embassy staff believed, was to increase average meat prices. 23/ Yet the official price index registered an increase of less than 1 percent in food prices during 1956. In 1955, all meat and

\* For discussion of the Chapman index, see c, p. 26, below.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

meat products accounted for 8.3 percent of total state and cooperative food sales. Thus, on the basis of 1955 weights, a 12-percent increase in meat prices would be required to raise all food prices by 1 percent. Hence a fairly substantial increase in meat prices could have comparatively little effect on the index of food prices.

It is not clear how the Central Statistical Administration in constructing the official price index for 1940 took account of the change in mid-1940 in Soviet geographical boundaries which resulted from the incorporation of the Baltic states. Recomputation of the official index by dividing an index of total sales expressed in current prices by the official index of sales volume for the years 1940 and 1950 agrees exactly with the official index. Yet in source 24/ the official index of sales volume is expressly stated to have been adjusted for the boundary change, whereas it is clear that the total value of sales in current prices for 1940 excludes sales in the Baltic states for most of the year. In view of the minor adjustment required in the index, the error in the official index, if any, can be assumed to amount to 2 percent or less.

Soviet literature on statistics of retail trade fails to mention adjustments in the indexes of price or volume to take account of changes in quality of products. Probably no such adjustments are made. The index for 1940-50, by failing to take account of reductions of quality during the period, may slightly understate the increase in prices during the period. On the other hand, by failing to take account of improvements in quality during 1950-58, which are likely to have been significant in the case of some commodity groups, the official index probably tends to understate the decline in prices.

(c) Indexes for 1945-49

The indexes of state and cooperative prices for this period appear to be the least reliable of any used in this research aid. The index for 1945-47 and 1948-49 was derived by dividing data on total sales (expressed in current prices) by the official index of sales volume. Except for 1947-48, the official index of sales volume was obtained by chaining annual percentage increases in sales reported in the annual announcements of plan fulfillment, working backward from 1950. In the quantity index, no link for 1947-48 was reported in the announcements of plan fulfillment but a price index for 1947 was reported in source 25/. This index for 1947 is suspect, because it is not certain that the index was constructed by the Central Statistical Administration. The index for 1947 is used here, however, because it agrees generally with estimates from other sources 26/ and because an alternative estimate would be subject to about the same degree of error.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

The index for 1948 computed by this method is about 5 percent less than the official index reported explicitly for 1948 in source 27/. It has not been possible to account for this discrepancy. Because the derived index for 1948 is in closer agreement with the Chapman index, it is used here in preference to the explicit index.

c. Revision of the Chapman Index

To obtain an independent check of the official index of state and cooperative prices for 1928, 1937, and 1948, the Chapman index was revised. The original Chapman index of the prices of consumer goods was constructed from prices charged in Moscow, which were obtained mainly from official price handbooks. Government decrees and advertisements in the press also were used to some extent. 28/ A large amount of attention was devoted to assuring comparability of products in determining price relatives for the sample which, for the 1928-37 comparison, consisted of 88 commodities, including 34 foods and 54 nonfood goods. The sample for the 1937-48 comparison consisted of 143 commodities, including 65 foods and 78 nonfood goods.

In the original index the 1928 weights consisted of the structure of expenditures by urban workers, and, for 1937 weights, adjustments to the 1936 structure of state and cooperative retail sales were used. The original Chapman index also was extended to 1952 on the basis of 1937 weights by means of the annual Soviet price decrees. Although the extension is only partially independent of the official index, it was not revised. Interestingly, the Chapman index for 1948-52 based on the price decrees agrees very closely with the official index.

Since the publication of the Chapman index, the Soviet government has released much additional data on the structure of state and cooperative retail sales for 1928, 1937, and 1950, which made it possible for the author to reweight the original Chapman index. The revised index used here makes use of the structure of 1928, 1937, and 1950 state and cooperative retail sales in deriving weights for 1928, 1937, and 1948, respectively. For constructing a deflator for retail sales, the primary purpose here, the structure of retail sales is more appropriate than the structure of expenditures of urban workers used by Chapman for 1928 weights.

Comparison of the results of the revision with the original Chapman index is presented in the following tabulation:

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

	1937	1948
	<u>(1928 = 100)</u>	<u>(1937 = 100)</u>

Original Chapman index:

1928 weights	875	
1937 weights	649	316

Revised Chapman index:

1928 weights	821	
1937 weights	597	329
1948 weights		283

Comparison of the original and the revised Chapman indexes indicates that, for the period 1928-37, use of the structure of state and cooperative sales as 1928 weights in lieu of the structure of expenditures of urban workers results in a smaller increase in prices, suggesting that the index appropriate for deflating state and cooperative sales understates considerably the increase in the cost of living of industrial workers during the period. Revision of the 1937 weights increased the index for 1928-37 substantially but made little difference in the index for 1937-48.

## 2. Index of Collective Farm Market Prices

### a. Derivation

The index of Soviet collective farm market prices for the years 1940 and 1950-58 was obtained from source 29/. For the years 1928, 1937, and 1948 this index was derived by working backward from 1955 on the basis of the index of state and cooperative food prices, together with estimates of the relation of collective farm market prices to state and cooperative food prices. The ratio of collective farm market prices to state and cooperative food prices in 1955 was estimated from source 30/. The ratios in 1937 and 1948 were obtained by averaging ratios for individual products in Moscow, weighted by the structure of state and cooperative sales. Data on state and cooperative prices in Moscow were obtained from source 31/ and data on collective farm market prices in Moscow from source 32/. The ratio of collective farm market prices to state and cooperative store food prices in 1928, which is the arithmetic mean of computations based on both state and cooperative weights and collective farm market weights, was obtained from source 33/. The ratios of collective farm market prices to state and cooperative food prices for the remaining years were derived

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

by adjusting the ratio in 1955 by the relative movements of prices in the two types of markets. The index of collective farm market prices for 1947 was obtained from source 34/.

The index for the earlier years is subject to a wide margin of error because of two major defects: first, except for 1928, the ratio of collective farm market prices to state and cooperative food prices is based on prices in Moscow only and is weighted only by the structure of state and cooperative food sales, and, second, the index of state and cooperative food prices, as has been shown above, is subject to a fairly wide margin of error, particularly for 1928, when a large amount of formula bias was present in the index.

b. Evaluation\*

The official index of collective farm market prices for the years 1940, 1947, and 1950-58 is subject to the two types of errors discussed under state and cooperative prices.\*\* The underlying data used by the USSR in calculating the official index of collective farm market prices are markedly inferior to those used in calculating the official index of state and cooperative prices.

The official index of collective farm market prices covers only markets in important cities and excludes collective farm markets in villages. Prices are recorded on the 25th day of each month in markets in about 300 large cities throughout the USSR. The sample is comprised of 26 commodity groups, including some 70 individual commodities.

Prices are recorded during the time of day and for the part of the market where the largest volume of sales takes place. The average monthly price for each commodity is obtained by computing a simple average of the price recorded each month and the price recorded in the preceding month. Quarterly and annual average prices, however, are obtained by weighting by quantities sold in the respective time periods.

Data on quantity of products handled are recorded daily and, in the case of sales by individual farmers, are estimated by subtracting visual estimates of stocks remaining at the close of day from visual estimates of quantities delivered to the markets each day. Complete records of sales are available, however, for goods sold by the collective farms.

As in the case of the index of state and cooperative prices, the index of collective farm market prices is constructed according to

\* Material presented in this section is derived from source 35/.

\*\* See l, b, p. 18, above.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

the Paasche formula with given year weights. The index is constructed by calculating an index for each of the 26 principal commodity groups in each major geographical area and then combining the 26 indexes on a group basis both geographically and for the entire country.

Because of the limitation on its geographical coverage and the crudity of much of its underlying data and because of the dispersion of the direction and extent of price movements as between both commodities and geographic areas, the official index of collective farm market prices is of dubious reliability.

Because adequate data on prices are available only for Moscow and because the movement of collective farm market prices in Moscow is not typical of that for the country as a whole, it has not been considered feasible to construct an independent index of collective farm market prices as a check on the official index. Table 4\* gives an indication of the geographical spread of movements of collective farm market prices in 1955-56.

### 3. Index of the Prices of Consumer Services

The index of prices of consumer services is based on a sample of the prices of six principal consumer services in Moscow for which consumers pay cash and is an extension of the Chapman index computed originally for the years 1928, 1937, 1948, and 1952. <sup>36/</sup> The sample includes housing (rent), utilities (water and electricity), transportation (streetcar and rail), communication (telephone and postage), and recreation (cinema). The index of the prices of services presented in Table 1\*\* is weighted by the structure of consumer outlays on services in 1955. An alternative index, weighted by the structure of consumer outlays in 1928, is presented below.\*\*\*

Before 1948 the prices of most services except housing were subject to relatively little central control and varied somewhat from locality to locality. However, the Council of Ministers, in a decree of 9 August 1948, established uniform prices for most of the services included in the index.

During 1928-48, there was a fairly wide dispersion in the movements of prices of services. During the period the price of motion picture tickets in Moscow increased 9 times, and the price of rail transport increased more than 6 times, whereas the prices of household electricity and water by 1948 were 2 and 3 times, respectively, the prices of 1928.

\*. P. 16, above.

\*\* P. 4, above.

\*\*\* P. 31, below.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

Because of the small sample used together with the dispersion both geographically and through time in the prices of services, the index of prices of services for the period 1928-48 is subject to a fairly wide margin of error.

In most cases except electricity the new price set by the decree of 9 August 1948 was set equal to the average of existing prices. The increase in the index between 1947 and 1948 reflects the increase in the price of electricity effective in mid-1948. Since 1950, no price changes for the principal consumer services have been announced, and available data on prices of individual services fail to indicate significant unannounced changes.

During 1928-58, there has been no change in the basic rates of rent set by the All-Union rent law of 1926. <sup>37/</sup> Under this law, rent consists of two elements: first, the apartment tax, which is based on actual facilities available in a given dwelling, and, second, an additional charge, which is based on level of income for all persons earning more than 145 rubles per month, with a legal maximum for the two elements in most cases of 1.32 rubles per square meter per month. Chapman estimates that the average rent paid in 1928 amounted to 0.26 rubles per square meter per month and that the corresponding charge in 1937 amounted to 0.77 rubles. <sup>38/</sup> By 1948, however, the average monthly wage had risen well above that wage which would require the occupant to pay the legal maximum rent (440 rubles per month). On the assumption that the payments of those whose incomes remained low enough to be charged less than the maximum rent are just offset by the payments of those whose legal maximum is greater than 1.32 rubles per square meter per month (such as handicraftsmen, teachers, and residents of new houses and multistoried apartments in the large cities), the average rent is estimated at 1.32 rubles per square meter per month for 1948. The average rent for 1948-58 is estimated to have remained unchanged on the basis that the increase in payments above 1.32 rubles per square meter per month has been offset by increases in categories of the population, such as pensioners, paying less than 1.32 rubles per square meter per month.

The index of rent does not take account of other outlays, such as bribes paid to housing officials to obtain apartments and the cost of maintenance and repair paid by tenants. These outlays probably reached a maximum during 1928-48, when excess purchasing power was at a peak and the stock of housing per capita was declining. Since 1950, however, the increase in the stock of housing per capita probably has served to reduce the importance of these outlays. The effect of including these outlays in the index, therefore, probably would be to raise somewhat the increase in the index between 1928 and 1948 and to reduce slightly the index between 1948 and 1958.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

The index of the prices of services does not take account of changes in the quality of the services provided. During 1929-48, when the quality of many services is likely to have declined, failure to take account of quality probably causes the index to understate the increase in the prices of services. Since 1948, however, the quality of some services probably has increased somewhat. If proper account of quality could be taken during this latter period, the index probably would show a slight decline in the prices of services.

To determine the extent of formula bias in the index of the prices of services, an alternative index was constructed with 1928 weights. The alternative index shows a 4.4-fold increase in the prices of consumer services during 1929-50, whereas the index with 1955 weights shown in Table 1\* shows a 3.5-fold increase.

#### 4. Combined Index of All Consumer Prices

This section describes the method used to combine the indexes of state and cooperative prices, collective farm market prices, and the prices of consumer services into a single consumer price index.\*\* The objective is to combine these indexes on the basis of their relative importance in household outlays for consumption purposes. Lack of data has precluded removal from the three individual indexes of the effect of changes in the prices of goods and services not purchased for household use.

##### a. Weights for 1955

Household outlays in 1955 rubles on goods for consumption purposes, used for combining the indexes of state and cooperative prices and collective farm market prices into a single index of consumer goods prices,\*\*\* were obtained by subtracting purchases by institutions and household purchases of building materials (defined as an element of gross investment) from state and cooperative retail sales in 1955 and by subtracting estimated purchases by institutions from collective farm market sales. The weight of outlays on consumer services was obtained from the ratio of estimated household outlays in 1955 on individual consumer services to total outlays on goods for consumption purposes. This computation is presented in the following tabulation 39/:

\* P. 4, above.

\*\* See I, p. 3, above.

\*\*\* See Table 1, p. 4, above.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

	<u>Billion Rubles</u>	<u>Percent</u>
Total household outlays for consumption purposes:	<u>543.6</u>	<u>100.0</u>
State and cooperative retail sales, 1955:	501.9	
Less purchases by state institutions (7.7 percent)	-38.6	
Less purchases of building materials	-9.1	
Total	<u>454.2</u>	<u>83.6</u>
Urban collective farm market sales:	47.8	
Less purchases by state institutions	-2.4	
Total	<u>45.4</u>	<u>8.3</u>
Household outlays on consumer services:		
Housing	4.2	
Utilities	5.1	
Transportation	16.5	
Communications	5.6	
Recreation	10.1	
Personal services	2.5	
Total	<u>44.0</u>	<u>8.1</u>

b. Weights for 1928 40/

In estimating household outlays on goods and services in 1928, total purchases of goods by institutions and household outlays on goods for nonconsumption purposes were deducted from the total of state and cooperatives sales and private sales:

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

	<u>Billion Rubles</u>	<u>Percent</u>
Total household outlays for consumption	<u>13.5</u>	<u>100.0</u>
State and cooperative retail sales	11.8	
Private sales	3.6	
Less purchases by institutions and household outlays for nonconsumption purposes	-4.3	
Total household outlays on goods for consumption	<u>11.1</u>	<u>82.2</u>
Total household outlays on consumer services	<u>2.4</u>	<u>17.8</u>

c. Results Using 1928 Weights

The combined index presented in Table 1\* was constructed with 1955 weights. This index is compared with an alternative index constructed with 1928 weights in the following tabulation (1950 = 100):

<u>Year</u>	<u>1955 Weights</u>	<u>1928 Weights</u>
1928	8.0	7.9
1937	45	45
1948	135	140
1950	100	100
1955	78	83
1958	79	82

\* P. 4, above.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

The tabulation shows that it makes comparatively little difference to the combined index whether 1928 or 1955 weights are used. In the index using 1928 weights, which gives greater weight to the index of collective farm market prices and the index of the prices of consumer services than does the index using 1955 weights, the influence of the large increase in collective farm market prices is offset by the small increase in the prices of consumer services during 1928-50. During 1950-58, however, the index using 1928 weights shows a somewhat smaller decline in prices than does the index using 1955 weights because both the collective farm market index and the consumer service index show smaller declines than does the state and cooperative index.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

APPENDIX B

GAPS IN INTELLIGENCE

Numerous small deficiencies in this research aid have resulted from gaps in information. These gaps, of necessity, had to be filled by approximations. The outstanding gap, however, is the lack of comprehensive official handbooks of consumer prices from which adequate checks of the official index of state and cooperative retail prices could be made for the period since World War II and from which the index of the prices of consumer services could be greatly strengthened.

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

# APPENDIX C

## SOURCE REFERENCES

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary."

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this research aid. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

1. RAND Corporation. P-449, Real Wages in the Soviet Union, 1928-52, by Janet Chapman, 17 Oct 53. U. Eval. RR 2.
2. Word, P.W. "US Statisticians Challenge Soviet Production Figures," Baltimore Sun, 25 Jan 59. U. Eval. RR 2.
3. Holzman, F.D. Soviet Taxation, Cambridge, 1955, p. 142. U. Eval. RR 2.
4. The New York Times, 1 Feb 59, p. E-5. U. Eval. RR 2.
5. CIA. CIA/RR RA-30, Money Earnings in the USSR, 1928-60, 23 Apr 58, p. 2. OFF USE.
6. USSR, Tsentral'noye Statisticheskoye Upravleniye. Sovetskaya trgovlya, statisticheskiy sbornik (Soviet Trade, Statistical Handbook), Moscow, 1956, p. 33-35. U. Eval. Doc. (hereafter referred to as USSR. Trade Statistical Handbook).

C-O-N-F-I-D-E-N-T-I-A-L

C-O-N-F-I-D-E-N-T-I-A-L

7. Vestnik statistiki, no 8, Aug 58, p. 81. U. Eval. Doc.
8. Sovetskaya trgovlya, no 1, Jan 58, p. 13-16. U. Eval. RR 2.
9. USSR. Tsentral'noye Statisticheskoye Upravleniye. Narodnoye khozyaystvo SSSR v 1958 godu (National Economy of the USSR in 1958), Moscow, 1959, p. 712, 715, and 787. U. Eval. Doc. (hereafter referred to as USSR. Yearbook)
10. Joint Committee on Slavic Studies. Current Digest of the Soviet Press, vol 10, no 46, 24 Dec 58, p. 31-33. U. Eval. RR 2. International Arts and Sciences Press. Problems of Economics, vol 1, no 8, Dec 58, p. 13-17. U. Eval. RR 2.
11. USSR, Gosudarstvennoye Izdatel'stvo Politicheskoy Literatury. Ekonomika sovetskoy trgovli (Economics of Soviet Trade), Moscow, 1958, p. 258-264. U. Eval. RR 2.
12. USSR. Yearbook (9, above), p. 707. U. Eval. Doc.
13. CIA. CIA/RR 150, Outlays on Consumer Services in the USSR, 1948-60, Nov 58. U.
14. Vestnik statistiki, no 3, Mar 57, p. 94. U. Eval. RR 2.
15. USSR, Tsentral'noye Statisticheskoye Upravleniye. Narodnoye khozyaystvo SSSR v 1956 godu (National Economy of the USSR in 1956), Moscow, 1957, p. 237. U. Eval. Doc. USSR. Yearbook (9, above), p. 770. U. Eval. Doc.
16. USSR. Trade Statistical Handbook (6, above), p. 20. U. Eval. Doc. Vestnik statistiki, no 8, Aug 58, p. 81. U. Eval. Doc.
17. Sovetskaya trgovlya, no 11, Nov 57, p. 59. U. Eval. Doc.
18. Sotsialisticheskiy trud, no 5, May 59, p. 51. U. Eval. Doc.
19. USSR. Trade Statistical Handbook (6, above), p. 132. U. Eval. Doc.
20. Sotsialisticheskiy trud, no 5, May 59, p. 51. U. Eval. Doc.
21. Ryauzov, N.N., and Titel'baum, N.P. Statistika sovetskoy trgovli (Statistics of Soviet Trade), Moscow, 1956, p. 151-159. U. Eval. Doc. Katal'nikov, I.F. Statistika sovetskoy trgovli (Statistics of Soviet Trade), Moscow, 1957, p. 66-73. U. Eval. Doc. Plan, no 4, 25 Feb 57, p. 44-47. U. Eval. Doc.
22. USSR. Trade Statistical Handbook (6, above), p. 131. U. Eval. Doc.
23. [REDACTED]
24. USSR. Trade Statistical Handbook (6, above), p. 12. U. Eval. Doc.
25. Sotsialisticheskiy trud, no 5, May 59, p. 57. U. Eval. Doc.
26. Wiles, P.J.D. "Retail Trade, Retail Prices, and Real Wages in USSR," Bulletin of the Oxford University Institute of Statistics, vol 16, no 11, Nov 54. U. Eval. RR 2. Ibid., vol 16, no 12, Dec 54. U. Eval. RR 2.
27. USSR. Trade Statistical Handbook (6, above), p. 132. U. Eval. Doc.
28. RAND Corporation. P-449 (1, above).
29. USSR. Trade Statistical Handbook (6, above), p. 182. U. Eval. Doc.

25X1A

C-O-N-F-I-D-E-N-T-I-A-L

- USSR. Yearbook (9, above), p. 787. U. Eval. Doc.
30. USSR. Trade Statistical Handbook (6, above), p. 133, 134.  
U. Eval. Doc.
31. RAND Corporation. P-449 (1, above).
32. Kerblay, A. Official Moscow Collective Farm Market Prices  
(unpublished). OFF USE. Eval. Doc.
33. RAND Corporation. P-449 (1, above).
34. Sotsialisticheskiy trud, no 5, May 59, p. 51. U. Eval. Doc.
35. Ryauzov and Titel'baum, op. cit. (21, above).  
Katal'nikov, op. cit. (21, above).  
Plan, no 4, 25 Feb 37, p. 44-47. U. Eval. Doc.  
Whitman, J.T. "The Kolkhoz Market," Soviet Studies, vol 7,  
no 4, Apr 56, p. 384. U. Eval. RR 1.
36. RAND Corporation. P-449 (1, above).
37. Sosnovy, T. "Rent in the USSR," The American Slavic and East  
European Review, vol XVIII, no 2, Apr 59, p. 174. U.  
Eval. RR 2.
38. RAND Corporation. P-449 (1, above).
39. CIA. CIA/RR RA 150 (13, above).  
USSR. Trade Statistical Handbook (6, above), passim. U. Eval. Doc.
40. Hoeffding, O. Soviet National Income and Product in 1928,  
New York, 1954, p. 115. U. Eval. Doc.

C-O-N-F-I-D-E-N-T-I-A-L

Approved For Release 1999/09/27 : CIA-RDP79S01046A000700080001-6

**CONFIDENTIAL**

**CONFIDENTIAL**

Approved For Release 1999/09/27 : CIA-RDP79S01046A000700080001-6